

**H E P M P**

HIGHER EDUCATION PAIN MEDICINE PROJECT

The analysis of  
education offer  
in pain medicine  
in Slovenia



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## List of Abbreviations

CBHE	Capacity Building in Higher Education
D&E	dissemination and exploitation
EACEA	Education, Audiovisual and Culture Executive Agency
EC	European Commission
EU	European Union
GA	Grant Agreement
HCWs	Health Care Workers
HE	Higher Education
HEI	Higher Education Institution
HEPMP	Higher Education Pain Medicine Project
LLL	Life Long Learning
NEO	National Erasmus+ Office
PA	Project Adviser
PA	Partnership Agreement
PC	Project Coordinator
PCC	Partner Country Coordinator
PCs	Partner Countries
PCT	Partner Country Team
PgCC	Programme Country Coordinator
PgCs	Program Countries
PgCT	Programme Country Team
PM	Pain Medicine
PMB	Project Management Board
QCB	Quality Control Board
TL	Task Leader
TLs	Task Leaders
UB	Faculty of Medicine University of Belgrade, Belgrade, Serbia
UBBL	Faculty of Medicine University of Banja Luka, Bosnia and Herzegovina
UF	Faculty of Medicine University of Florence, Italy
UHDM	University Clinical Hospital Centre "Dr Dragisa Misovic-Dedinje" Belgrade, Serbia
UK	Faculty of Medical Sciences University of Kragujevac, Kragujevac, Serbia
ULj	Faculty of Medicine University of Ljubljana, Slovenia
UP	Faculty of Medicine University of Podgorica, Montenegro
UR	Faculty of Medicine University of Rijeka, Croatia
UT	Faculty of Medicine University of Tuzla, Bosnia and Herzegovina
WP	Workpackage

## I About the HEPMP project

### 1.1 The HEPMP project summary

**Funding:** Erasmus+

**Key Action:** KA2 Capacity Building in Higher Education

**Type of project:** Joint Projects

**Coordinating Institution:** University of Belgrade

The main aim of HEMP project is to increase quality of education in pain medicine in order to contribute to the improvement of public health care services and PCs in line with the Health 2020. In Serbia, Montenegro and Bosnia and Herzegovina there is a significant problem of large percentage of the population who suffers from cancer, rheumatic and neurological diseases, while education in the field of pain medicine is insufficient. In fact, one of the priorities of the strategy Health 2020 improvement of the quality of medical services and continuously adapt to changing patterns of disease. Aim of this project is developing an interdisciplinary program in Pain Medicine at the under / postgraduate studies by applying new methodologies and specific learning outcomes in partner country universities. The introduction of the modernized study program of pain medicine is important for improvement of the quality of higher education that will contribute to improve the health care of the population. Moreover, one of the aims is establishment of academic network that would allow the exchange of knowledge of HCWs in Serbia, Montenegro and Bosnia and Herzegovina. The main tool of this network would be development of educational PAIN REGION WB Network which will enhance regional cooperation and education of pain medicine of all partner country universities.

Also, one of the HEPMP aims is delivering of trainings of pain medicine in order to increase skills and competences of health care workers (HCW) in PCs . Training would be for the two target groups: the first type of courses would be for HCWs who work in primary health care centres and daily dealing with the management of pain medicine, and other types of courses would organized in the form of highly specialized training for interventional treatment of pain for doctors who work in tertiary institutions. During the project will form the learning material in the form of brochures for courses and textbooks on pain.

## 1.2 The HEPMP project consortium

No	Institution	City	Country
1	University of Belgrade	Belgrade	Serbia
2	University of Kragujevac	Kragujevac	Serbia
3	University of Tuzla	Tuzla	Bosnia and Herzegovina
4	University of Banja Luka	Banja Luka	Bosnia and Herzegovina
5	University of Montenegro	Podgorica	Montenegro
6	University of Florence	Florence	Italy
7	University of Ljubljana	Ljubljana	Slovenia
8	University of Rijeka	Rijeka	Croatia
9	KBC Dr. Dragisa Misovic-Dedinje	Belgrade	Serbia

## 1.3 The HEPMP Managing Board

No	Name and Last Name	Institution
1	Prof. dr <i>Predrag Stevanović</i> ,	University of Belgrade, <b>Project Coordinator</b>
2	Prof. dr Jasna Jevđić	University of Kragujevac
3	Prof. dr Vladimir Đukić	KBC dr Dragiša Mišović
4	Prof. dr Danko Živković	University of Montenegro
5	Prof. dr Jasmina Smajić	University of Tuzla
6	Prof. dr Darko Golić	University of Banja Luka
7	Prof. dr Anđelo Rafele De Gaudio	University of Florence
8	Prof. dr Maja Šoštarić	University of Ljubljana
9	Prof. dr Željko Župan	University of Rijeka

## **II The analysis of education offer in pain medicine in Slovenia**

Medical faculty Ljubljana is a part of University of Ljubljana which was established in 1919. At present University of Ljubljana consists of 23 faculties and 3 art academies. The study fields of University of Ljubljana are: Natural Science, Technology and Engineering, Social Science, Humanities, Medicine and Art.

The study programme of medicine and dental medicine lasts for 6 years. Mainly the preclinical programme is in the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year and clinical programme from 4<sup>th</sup> to 6<sup>th</sup> year.

The study of pain medicine is a part of many subjects from the 1<sup>st</sup> to 6<sup>th</sup> year of the medical study. In the first three years, the students learn about pain in subjects: anatomy, biophysics, physiology, histology and embryology, pathophysiology, special pharmacology and toxicology and history of medicine.

To understand pain medicine the students must learn the anatomy of peripheral and central nervous system and anatomy of pain pathways which are the topics of anatomy. The transmission of electrical impulses along the nerves is the knowledge which is obtained at biophysics and is the basis for understanding the transmission of pain impulses. The pain medicine is learned more in details at physiology where the function of somatosensory system is explained. The students understand the difference between visceral and nociceptive pain and main difference between acute and chronic pain. They learn about the stress response to the pain stimuli and the importance of prevention and treatment of pain. At histology and embryology, the students get to know the composition of nerves and nerve endings. They distinguished between proprioceptors, thermoreceptors, nociceptors and tactile receptors. At the pathophysiology they learn the pain sensing theories, nervous system modulation, action potential and thresholds. The possibilities of medical pain treatment are explained and learned at special pharmacology and toxicology. The pharmacokinetics and pharmacodynamics of opioid and non-opioid analgesics are studied. The unwanted side effects of analgesic are described and students



understand the danger of drug addiction. Looking in the past at the history of medicine the students get known the history of the invention of the analgesic drugs, techniques for pain relief and the history of anaesthesiology as the medicine specialities.

Between the clinical subjects from the 4<sup>th</sup> to 6<sup>th</sup> year the pain medicine is dealt in oncology, gynaecology and obstetrics, internal medicine, surgery, family medicine and the comprehensive knowledge is obtained at anaesthesiology. At oncology some parts of cancer pain are covered and how to relieve cancer pain in terminal disease. This topic is also included in lectures of palliative medicine.

Department of anaesthesiology and reanimatology organizes lectures and practical work where pain medicine is included. The lectures about acute postsurgical pain treatment are organised. Medical doctors, specialists of anaesthesiology and perioperative intensive medicine who are involved in the acute pain service at the University Medical Centre Ljubljana are the main speakers and organizers of practical work at the hospital. At the hospital the students join the doctors to the rounds at the surgical departments. They get acquainted with the possibilities of the postoperative pain relief, the different techniques from peripheral and central blocks and different drugs. They learn how to evaluate pain with the use of visual analogue scale and other scales and questionnaire. They learn how to use patient control pumps and how to prescribe analgesics. Lectures are dedicated to topics about pain management during birth. The possibilities of intravenous and epidural pain relief techniques are explained.

The facultative subject Pain is organized in the 6<sup>th</sup> year. Every year 20 students decide to join this subject. The subject consists of lectures and practical work at the simulation centre and at the hospital. Beside acute postoperative pain management the chronic pain, obstetric pain and cancer pain is covered. The students learn about the systemic analgesic, techniques of regional anaesthesia for pain management. They attend the lectures about cancer pain and palliative medicine. At the pain clinic the students have lectures about chronic pain and acupuncture. The importance of

multi and interdisciplinary approach to the pain management is emphasized. They join the doctors at the clinical rounds. They spend some time at the operating room where they learn how to plan the postoperative pain management and about all the unwanted side effects of unsuccessful treatment of acute postoperative pain. At the end the students prepare and present the seminars about lumbar pain, postoperative pain management after thoracic surgery and obstetric pain management.

The pain management is covered also at the facultative subjects Anaesthesiology and Ultrasound in anaesthesia.

Facultative subject Anaesthesiology is organised in the 6<sup>th</sup> year and students get more deepened knowledge of postoperative pain management. They learn which methods and techniques are appropriate for different surgical procedures and how to prescribe the opioids and other analgesics. They learn how to use patient control pumps for postoperative pain management. They attend the Teach the Teachers courses which are organized in the hospital as the part of continuous education of doctors and nurses from surgical and non-surgical departments. Partly the courses are organized in simulation centres. At the subject Ultrasound in anaesthesia the students learn the basics of physics of ultrasound, how to use ultrasound machines and probes. They repeat the anatomy of peripheral nerves and perform the peripheral nerve blocks on the phantoms. They learn the pharmacology of local anaesthetics and they acquire the knowledge about the importance of peripheral nerve blocks for postoperative pain management.

In Slovenia the curriculum and the programme of different specializations are made by different medical associations which are members of Slovenian medical association. The curriculum is than confirmed by Ministry of health and Slovenian medical chamber is responsible for implementation of the programme, tender of the specialization, examination and licencing. In many curriculums the pain medicine is included but in the anaesthesiology, reanimatology and perioperative intensive care and family medicine this topic is the most extended included. The curriculum of those two specializations are made by Slovenian association of anaesthesiology and

intensive medicine and Slovenian family medicine society. Both curriculums are harmonized by the UEMSA programmes. The parts of curriculum where pain medicine is covered, were consulted with Slovenian association for pain treatment (SAPT). The residents are educated in the field of acute and chronic non-malignant and cancer pain. They learn about acute pain management and are a member of the acute pain service team who is responsible for pain management of all surgical departments. Residents spend one month in pain clinic where they learn about non-malignant chronic pain and one month they learn about cancer pain management in the oncological pain clinic in the Institute of oncology. They learn about the pharmacotherapy of pain, the mechanism of action of opioids and non-opioids analgesic, the unwanted side effects and how to prescribe different analgesic drugs and other techniques and methods for pain management. The lectures and practical work are also dedicated to dangerous of opioid addiction and opiophobia. The residents learn also about the possibilities the use of anticonvulsants and antidepressant drugs. The residents are able to work in acute pain service and to take care of the patients with uncomplicated pain syndromes. Special module Pain management is organized every year as the part of continuous education organization of the residents. This module covers pathophysiology of pain, pharmacology of analgesics and local anaesthetics, acute and chronic pain management, acupuncture and other techniques for pain relief. The residents attend the course of peripheral nerve blockade and learn about the methods for pain management using this technique. Technical and non-technical skills are learned in simulation centre and after the practice in simulation centre then anaesthesia residents start to work in operation theatres.

As family medicine practitioners during their everyday work often treat patients with acute and chronic pain they have to learn about pain medicine during their residency. The education of family medicine is organized as module and clinical work with the help of mentors. During the specialization they learn how to prescribe opioid and non-opioid analgesics and when the patients should be referred to the

secondary and tertiary level of treatment. They have special module of palliative care and treatment of cancer pain.

In the programme of other specializations there is also the education of pain medicine but in lesser extent than in the programme of specialization of anaesthesiology, reanimatology and intensive medicine. In Slovenia the anaesthesiologists are the leaders in the field of pain medicine providers and leaders in the field of education of all the other healthcare providers.

In Slovenia there is no special specialization or subspecialisation of pain medicine and it is also not planned in the future. Slovenian medical association organizes education programme which is called a special knowledge and additional knowledge. The difference is in the duration of education. The programmes are designed for the specialists of different fields.

For 2019 the introduction of additional knowledge in Pain medicine is planned. The curriculum was done by the Slovenian association of anaesthesiology and intensive medicine and SAPT. The programme consists of lectures and practical work. The programme of additional knowledge in pain medicine in the beginning presents definitions of pain, enlightens ethical and legal aspects of pain, includes basic understanding of anatomy of pain pathways, physiology and pathophysiology of pain, psychology of pain addresses affective factors, cognitive and behavioural factors, social influences, psychiatric and psychosomatic comorbidities. Classification of acute and chronic pain, nociceptive and neuropathic pain, typical comorbidities with pain are part of the programme. It starts with the approach to the patient in pain: general history of pain, examination of the patient, diagnostic approach. The programme includes pain measurement and assessment and basic principles of pain management: discusses causal and symptomatic therapeutic approach, includes pharmacological and non-pharmacological pain management techniques with multimodal approach and patient education. In separate modules there are: acute, postoperative and posttraumatic pain, cancer pain, neuropathic pain, chronification of pain, differentiation between acute and chronic pain. Specific therapeutic

situations are studied: pediatric patient, communication with different types of patients, geriatric patient, dementia, communication with a dement patient, pain management in pregnancy and breast-feeding. The problem of dependency and craving is addressed

Additional to Slovenian school of acupuncture, Special knowledge of Acupuncture is planned in 2019. The curriculum was drawn up by Slovenian association of acupuncture, SAPT and Slovenian association of anaesthesiology and intensive medicine. The programme of Acupuncture consists of lectures and practical work. The lectures cover traditional Chinese medicine; anatomy of meridians and acupuncture points; physiology, patophysiology and diagnostic of Zang Fu organs; the basis of traditional Chinese diagnostic; neurophysiology of pain; acupuncture and pain medicine; acupuncture and cancer; acupuncture and obstetrics; acupuncture and neuropsychiatry; acupuncture and allergic disease; auricular acupuncture. Practical work consists of acupuncture technique and individual approach to the patient using traditional Chinese medicine. They also learn about the history of acupuncture and traditional Chinese medicine. Acupuncture and traditional Chinese medicine are more and more popular in Slovenia but there is also not enough regulative. The position of Slovenian medical association is that acupuncture could be safely and effectively performed only by the medical doctors with special knowledge and as a complementary method. The Slovenian medical association decided to be the leading factor to improve this medical and regulative field.

In the year 2017 and previous years , the problem of pain was discussed at various meetings, continuing education programs, professional meetings, congresses and forums. The following are the lists of meetings dedicated to the problem of pain or the pain considered as a part of the meeting.

**Slovenian association for pain treatment (SAPT)** celebrated 20th anniversary in april 2017 and for that occasion a special academy meeting was organized in the main slovenian cultural center, at Cankarjev dom. Distinguished international lecturers and pain specialists were invited speakers and honorary awards were given to the founders of SAPT.

**Slovenian association of neurologists and its Section for headache** organized a professional meeting with international participation Migraine 2018 on April 20. Plenary lectures about Epidemiology of headache in Slovenia and impact on quality of life, General/Family medicine and migraine, Headache and sick leave were presented and Economic aspects of migraine were discussed. Important part of the meeting were devoted to Impact of CGRP in migraine, a workshop with clinical cases about Management of patients with migraine was organized, at a round table Slovenian guidelines for treatment of migraine patients were presented and discussed. A book of proceedings was published for this occasion.

**Slovenian association of neurologists and its Section for headache** organized a meeting Life without headache in March 2017, and published a textbook with the same title. Pharmacological and nonpharmacological methods for pain management of different types of headaches are discussed in 15 chapters of the textbook.

**Slovene family medicine society and Institution for family medicine development** organized a professional meeting on April 20. Indications for pain treatment with NSAIDs and their safety were presented during the meeting. PRO & CON for the use of coxibs were discussed.

**Slovene family medicine society** regularly organizes workshops for mentors of family doctors. Workshops about pain management for mentors of family doctors were organized in January, February, March and December 2017.

Family doctors of different Slovenian regional public health care centers regularly organize workshops about pain management, it was organized in health care centers in different towns: in Tržič in March, in Bežigrad Ljubljana in June, in Celje in Velenje and in Vrhnika in December 2017.

Continuous medical education is organized regularly in different **Slovenian general hospitals** and many of them are about acute and chronic pain management. A pain management meeting was organized in General hospital Trbovlje in October 2017, in Sežana and in Izola in December 2017.

**Slovenian society for anesthesiology and intensive care** organized a regional meeting in Jesenice in April 2017. The title of the meeting was Dimensions of anesthesiological approach – from pain management to holistic palliative care of a patient with a chronic disease. Slovenian guidelines for chronic malignant and nonmalignant pain were discussed, holistic approach to a palliative patient was questioned, present situation in palliative and end of life care in Slovenia were presented, PRO & CON of the role of opioids in pain management was discussed, mindfulness was presented as a nonpharmacological method of pain management.

**Slovenian society for anesthesiology and intensive care** organized the 7th Slovenian congress of anesthesiologists with international participation in Ljubljana in November 2017. In behalf of the International association for the study of pain (IASP) the year 2017 was devoted to postoperative pain. Therefore, in behalf of this important national congress for anesthesiologists with international participation, part of this meeting was devoted to postoperative pain management. Postoperative pain treatment in Slovenia was presented by the present president of SAPT, chronic postoperative pain was discussed in a panel lecture, PRO & CON sessions were devoted to continuous epidural analgesia, NSAIDs and paracetamol and metamizol in postoperative pain management. 20 years of Acute pain service in Ljubljana university medical center were presented.

In November 2017 the **Slovenian association for pain treatment (SAPT)** published a booklet on postoperative pain management specially for the occasion of the 7th Slovenian congress of anesthesiologists with international participation and for the occasion of the year of postoperative pain in behalf of IASP. The lectures and Slovenian guidelines for postoperative pain management are presented in this booklet.



In June 2018 **SAPT** organized in Ljubljana a symposium on neuropathic pain for medical doctors of different specialities. The meeting was interactive, case reports and theoretical lectures were combined and interactive participation of the audience was crucial. Different kinds of neuropathic pain were addressed: peripheral, central, visceral, malignant and nonmalignant neuropathic pain. All possible pain management techniques for neuropathic pain were presented: pharmacological possibilities, non-pharmacological approaches, invasive techniques and possible methods in the near future.

**Slovenian society for palliative and hospice care** regularly organizes courses of basic knowledge of palliative care and end of life care, one of the important components of the basic training as part of the 60 hours program is also pain management. The education program of palliative medicine was organized in February, May and October 2017.

**Slovenian pediatric society, Chair of pediatrics on Medical faculty, University of Ljubljana and Pediatric clinic Ljubljana** published a textbook Pediatric pain management. The physiology of acute and chronic pain, cancer and non cancer pain, pain assessment tools and different pain management approaches are discussed, psychology and physiology of different pediatric population is described: starting from the premature, newborn, to a small baby, little child, a school child and also adolescent. The textbook is published in Slovenian and in English to enable both Slovenian and foreign students from Erasmus project to study it. It was published in March 2017.

In **Pediatric clinic Ljubljana** there is a continuous education for pediatric nurses: Atraumatic management of a pediatric patient, organized 4 times per year, it was organized in January, April, September and December 2017, also in March, April and September 2018. Acute and chronic pain of cancer and non cancer pain are lectured, pain associated with diagnostic procedures is discussed, pain assessment techniques are presented in workshops. Pharmacological and non pharmacological pediatric pain management techniques are presented.



**Slovenian society for gastroenterology and Society fundation Dr J. Cholewa** each year organize a continuous medical education programme called Pancreatic disease academy. Pancreatic pain management is an important topic of the meeting, addressing the physiology and pathophysiology of acute and chronic visceral pain, cancer and non cancer pain and also neuropathic pain, discussing pharmacological and nonpharmacological pain management approaches, including invasive and surgical techniques and psychological and psychotherapeutical methods. Pancreatic disease academy was organized in April 2017.

For medical doctors of different specialities, including family doctors, internal medicine doctors and others, a medical organization for **continuous medical education Edumedic** organized a meeting about diabetes in May 2017. An important part of the meeting was devoted to pain and different types of neuropathy in diabetes where absence of pain caused by nerve degeneration with possible mutilation of the body was explained and presented as maybe even a greater challenge for management than neuropathic diabetic pain itself.

**Slovenian society for reproductive medicine, Clinical department for reproduction in the Division of gynecology and obstetrics , University medical center Ljubljana and Clinical department for gynecology and perinatology University medical center Maribor**, organized a meeting Chronic pelvic pain (CPP) in women in Ljubljana in December 2017. Classification and epidemiology were described, noninvasive and invasive diagnostic methods were discussed, pathophysiology of CPP in women was explained and challenges of neuropathic pain management were addressed, all possible causes for CPP were discussed in different lectures, including musculoskeletal, gastrointestinal and urological diseases, related to CPP, the role of family doctor and physical rehabilitation was addressed. At the end, national guidelines for CPP were discussed at a round table.

In behalf of the annual congress of **Slovenian society for emergency medicine** in Portorož in June 2017 there was a session about the acute pain management. Anesthesiologists, trauma surgeons and specialists of emergency medicine presented

different approaches of acute pain management. Anaesthesiologists presented systemic and regional analgesic techniques that can be applied out of the hospital.

**Acute pain service of University medical center Ljubljana** regularly organizes audits with abdominal surgeons, traumatologists, urologists and orthopaedic surgeons. In behalf of the Acute pain service effectiveness and safety of postoperative analgesia is regularly measured and recorded, statistical analysis is performed monthly and annually, and results are annually presented at audits for the Clinical department for anesthesiology and perioperative intensive care, and also for different surgical departments. Protocols for postoperative analgesia are improved if necessary.

Members of Acute pain service give lectures about acute and chronic pain management for internal medicine clinical departments: in 2017 and 2018 there were lectures for medical doctors and nurses of the Clinical department for angiology, Clinical department for haematology and for Clinical department for nephrology.

**Pain nurses and anesthesiologists of Acute pain service of University medical center Ljubljana** organize regular education programmes for surgical ward nurses 3 – 4 times per year: in 2017 it was organized in February, May, October and December. Education program includes physiology of acute pain, pharmacological approach to acute pain management, regional techniques for postoperative pain management, postoperative pain assessment tools for patients on surgical wards and in intensive care units, patient monitoring on patient controlled analgesia pumps (PCA pumps) and elastomeric pumps. Workshops and final exam are also part of the education program about postoperative pain management.

**Slovenian society of pain nurses** was formed in 2017 and regular education programs were planned.

Lectures about chronic pain in patients with chronic wounds were presented at a meeting of **Slovenian society for chronic wound management** in Čatež in May 2017. The meeting was organized by nurses who are also members of this society.

Strengthening Capacities for Higher Education of Pain Medicine in Western Balkan  
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